

CLAIMS

1. An image processing method of presenting a virtual object superimposed on a physical space to an observer, characterized by comprising:
 - 5 a holding step of holding, in a memory, information of a state of each virtual object included in a virtual space;
 - 10 an association step of associating at least one virtual object included in the virtual space with at least one position/orientation sensor which is held in a hand of the observer and manipulated;
 - 15 a layout step of laying out, in the virtual space, the virtual object associated with the position/orientation sensor in the association step in accordance with a position and orientation of the position/orientation sensor itself, which are determined on the basis of a measurement result by the position/orientation sensor;
 - 20 a presentation step of presenting the state of each virtual object included in the virtual space to the observer on the basis of the information held in the holding step;
 - 25 an input step of inputting an operation to change a desired one of the states presented in the presentation step; and
 - an updating step of updating the information in accordance with the operation input in the input step.

2. The method according to claim 1, characterized by further comprising a registration step of registering, in the information, the position and orientation of the 5 position/orientation sensor itself, which are determined on the basis of the measurement result by the position/orientation sensor as a position and orientation of the virtual object associated with the position/orientation sensor in the association step,

10 wherein in the layout step, the virtual object is laid out in the virtual space by using the position and orientation of the virtual object registered in the information in the registration step.

15 3. The method according to claim 1 or 2, characterized in that the information includes a name, blinking state, selected/unselected state, and section display state of the virtual object.

20 4. An image processing method including acquiring position and orientation information of an observer,

acquiring an image of a physical space;

generating an image of a virtual space in

25 accordance with the position and orientation information of the observer, and

compositing the image of the physical space and

the image of the virtual space and displaying the
composited image on a head mounted display worn by a
user, characterized by comprising:

- generating an operation panel image and
- 5 compositing the operation panel image with the image of
the physical space and the image of the virtual space;
- acquiring position information of an operation
unit operated by the observer; and
- 10 updating the operation panel image in accordance
with a positional relationship between the operation
panel image and the operation unit,
wherein in the operation panel image, a part
selected by the operation unit is enlarged.

15 5. The method according to claim 4, characterized in
that

- the image of the virtual space is generated on
the basis of a 3D CAD data of a virtual object,
- the operation panel contains an assembly tree
20 based on the 3D CAD data, and
- the enlarged part includes a component name
contained in the assembly tree.

25 6. An image processing apparatus for presenting a
virtual object superimposed on a physical space to an
observer, characterized by comprising:

holding unit adapted to hold information of a

state of each virtual object included in a virtual space;

5 association unit adapted to associate at least one virtual object included in the virtual space with at least one position/orientation sensor manipulated by the observer;

10 layout unit adapted to lay out, in the virtual space, the virtual object associated with the position/orientation sensor by said association unit in accordance with a position and orientation of the position/orientation sensor itself, which are determined on the basis of a measurement result by the position/orientation sensor;

15 presentation unit adapted to present the state of each virtual object included in the virtual space to the observer on the basis of the information held by said holding unit;

20 input unit adapted to input an operation to change a desired one of the states presented by said presentation unit; and

updating unit adapted to update the information in accordance with the operation input by said input unit.

25 7. A program characterized by causing a computer to execute an image processing method of any one of claims 1 to 5.

8. A computer-readable storage medium characterized by storing a program of claim 7.